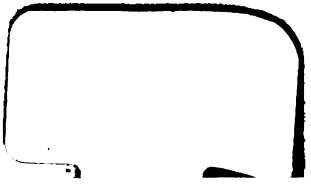
Torreya

Torrey Botanical Club



TORREYA

A Monthly Journal of Botanical Notes and News

JOHN TORREY, 1796–1873

EDITED FOR

THE TORREY BOTANICAL CLUB

BY

JEAN BROADHURST

Volume X

NEW YORK

1910

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THE NEW ERA PRINTING COMPANY
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ERRATA, VOLUME 10

Page 5, 10th and 21st lines, *insert* period *after* Marsh.
Page 5, 10th and 18th lines, for *prinus*, read *Prinus*.
Page 5, 11th line, *insert* period *after* Wang.
Page 5, 14th and 21st lines, *insert* period *after* Mill.
Page 6, 11th line, *insert* period *after* Marsh.
Page 7, 3rd line from bottom, *insert* period *after* Benth.
Page 8, 5th line from bottom, for *moscheutos*, read *Moscheutos*.
Page 8, 4th line from bottom, *insert* period *after* Mill.
Page 9, 11th line, *insert* period *after* Marsh.
Page 9, 12th line, *insert* period *after* Wang.
Page 9, 14th and 18th lines, *insert* period *after* Mill.
Page 9, 17th line, for *prinus*, read *Prinus*.
Page 33, 8th line from bottom, for *Pinus*, read *Prinus*.
Page 33, 15th line, for *virginensis*, read *virginiensis*.
Page 34, 21st line, for *virginia*, read *virginiana*.
Page 36, 8th line, *insert* comma *after* who.
Page 38, 13th line, for *insignia*, read *insignis*.
Page 39, 10th line, *for* ony, *read* any.
Page 59, 3rd line from bottom, after clavatum, *read* § *for* ‡.
Page 59, 1st line of footnote, *for* highe, *read* higher.
Page 63, 4th line from bottom, after *officinalis*, read †, footnote * on page 64.
Page 69, 11th line, *for* Hermann, *read* Herrman.
Page 81, 13th line from bottom, for *Balticus*, read *balticus*.
Page 83, 9th line, *for Clorosperma*, read *Chrosperma*.
Page 87, last line, *insert* comma *after* bees.
Page 91, 18th line, *omit* comma *after* L.
Page 112, third line, *insert* comma at end of line.
Page 124, 14th line, *for* ' read " .
Page 124, 16th line, *for* Pierce, *read* Peirce.
Page 126, 13th line, for *newtoni*, read *Newtoni*.
Page 145, 14th line, for *Philadelphicim*, read *philadelphicum*.
Page 149, at ends of 15th and 17th lines, *transpose* hyphen *and* period.
Page 189, 18th line, *insert* of *before* Penicillus.
Page 192, 7th line, *insert* comma *after* Tennessee.
Page 194, 5th line, for *glaucaphylla*, read *glaucophylla*.
Page 214, 10th line, *for* employe, *read* employé.
Page 219, 8th line from bottom, for *Noveboracensis*, read *noveboracensis*.
Page 226, 9th line, *for* (March), *read* (Marsh.).
Page 230, 1st line, *for* **Caesariense,** *read* **caesariense.**

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TORREYA

March, 1910

Vol. 10 No. 3

SUMMER NOTES ON THE MOUNTAIN VEGETATION OF HAYWOOD COUNTY, NORTH CAROLINA

By Roland M. Harper

In July and August, 1908, it was my privilege to spend a few weeks at the Biltmore Forest School, in the mountains of North Carolina, by invitation of the Director, Dr. C. A. Schenck. This school is located during the summer months in the "Pink Beds", a beautiful valley in the northern corner of Transylvania County, with its floor elevated about 3,200 to 3,300 feet above the sea. The Pisgah Ridge, with its crest varying in altitude from about 4,500 to 6,000 feet, forms the northwestern boundary of this valley and the southeastern boundary of Haywood County.

The Pink Beds valley seems to be unique in several respects, and considerably more field work would be necessary before one could do justice to its very interesting vegetation and ecological problems. But the mountains of Haywood County seem to be thoroughly typical of western North Carolina, and much of what follows will doubtless apply almost as well to any other county in the neighborhood.

While sojourning with Dr. Schenck I ascended to the crest of the Pisgah Ridge several times, and walked once over to Waynesville (the county-seat of Haywood County, distant 16 miles from the Pink Beds "as the crow flies" and nearly half as far again by the roads) and back. On the way over to Waynesville I followed the East Fork of Pigeon River most of the way, leaving it at its confluence with the West Fork and going thence nearly due west the remaining seven or eight miles. On the way back I went up the West Fork a few miles, then turned eastward and

[No. 2, Vol. 10, of Torreya, comprising pages 29–52, was issued February 28, 1910.]

concluded that they were Pleistocene; C. A. White in 1883 considered them post-Tertiary; Carville Lewis in 1884 considered them to be inter-glacial in age; R. D. Salisbury in 1894 regarded them as post-Pensauken but in 1895 and since has included them in his Pensauken formation; Pilsbry in 1896 says that they are inter-glacial or pre-glacial, probably the latter; Woolman in 1896 referred them to the Pensauken; and Shattuck in 1906 correlates them with the Talbot formation of Maryland. In the judgment of the writer the fossiliferous stratum at least is not older than the last interglacial and the probability is strong though unverified that it is post-glacial in age. The same remark is applicable to the fossiliferous peat near Long Branch which has yielded seeds and fruits of a number of different species of plants.

While the present collections are too small for any very definite conclusions regarding the climatic conditions which were prevalent in this latitude at the time these plants were living, it is significant that of the nine forms enumerated only three are species which in the recent flora range from Canada or New England to Florida These are *Juniperus virginiana*, *Hicoria glabra*, and *Vitis aestivalis;* and in all three cases the New Jersey Pleistocene forms are not as conclusively determinable as would be desirable. Of the remaining six species, *Quercus Phellos* is the only one which in the existing flora extends northward beyond this Pleistocene occurrence and then only for a few miles. The others all have their present day northern limits of range considerably south of their northern limits in the late Pleistocene. *Nyssa biflora*, *Vitis rotundifolia*, and *Taxodium distichum* do not range northward beyond southern Maryland at the present time, while *Pinus Taeda* is said to find its northern limit in Cape May County, N. J. *Zizyphus* is not represented at all in the northern or central coastal plain at the present time and is mainly tropical in its distribution. These facts though few in number and coupled with a certain lack of precision regarding the exact age of the deposits are of considerable interest since it is a well-known fact confirmed by abundant and conclusive evidence that in Europe the last glacial retreat was succeeded by a period during

which the climate was considerably warmer than it is at the present time as shown by the extension of various members of the existing flora for many miles to the northward of their present range.

The writer gratefully acknowledges his indebtedness to Mr. W. L. McAtee of the Biological Survey who through the courtesy of Dr. C. Hart Merriam has examined not only some of the present specimens but also other Pleistocene fruits and seeds collected by the writer. The Biological Survey in its extensive studies of the stomach contents of birds and mammals has accumulated large collections of fruits and seeds as well as experience in the identification of materials of this sort which is invaluable to the student of swamp deposits like so many of our Pleistocene plant-bearing horizons.

The following notes refer to the forms from New Jersey which have been recognized in the present study.

Taxodium distichum (Linné) Rich.

Holmes, Journ. Elisha Mitchell Soc. for 1884–85: 92. 1885.
Hollick, Md. Geol. Surv. Pli. & Pleist. 218, 237. *pl. 68.* 1906.
Berry, Torreya, **6**: 89. 1906. Journ. Geol. **15**: 339. 1907. Amer. Nat. **43**: 434. *f. 1, 2.* 1909. Amer. Journ. Sci. (iv), **29**: 391. 1910.

In the existing flora the cypress reaches its northern limit in southern Delaware and Maryland. Its range is becoming gradually restricted in the coastal plain as is shown by the sub-fossil occurrences of stumps north of the present limit of pure stands.

In the late Pleistocene its range was much more extensive and fossil remains are found at numerous localities north of its present limit of distribution. The most northerly of these occurrences is the present record based upon cone-scales from near Long Branch, N. J., which is nearly 200 miles north of the present northern limit of the species.

Pinus Taeda Linné.

Berry, Amer. Journ. Sci. (iv), **29**: 391. 1910.

Cones and seeds of this species were recorded recently from the Pleistocene of both eastern and western Alabama. In the

existing flora the Loblolly pine becomes confined to the coastal plain north of the Potomac River valley, although to the southward it spreads over the Piedmont plateau and into the Appalachian region. It is found as far north as Cape May County, N. J., but the most northerly pure stands are in southern Delaware and Maryland on the sandy soils derived usually from the Pleistocene formations.

The present occurrence is based upon seeds from the swamp deposit near Long Branch, N. J., indicating that this species extended at least 75 miles farther northward in the late Pleistocene than it does at the present time.

Juniperus virginiana Linné (?).

Seeds of a *Juniperus* closely resembling those of this species occur near Long Branch, N. J. They are queried since from fossil wood in the possession of the writer collected from the

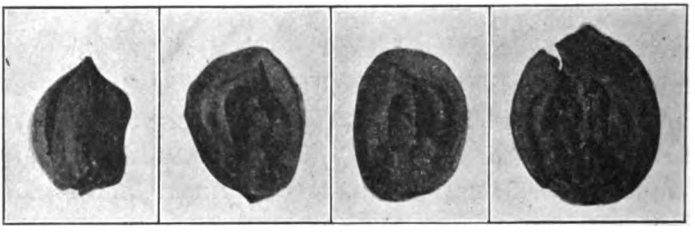

FIG. 1.—Nuts (×1) of *Hicoria glabra* from Long Branch.

Pleistocene of Maryland it is clear on anatomical grounds, that an extinct species of *Juniperus* was present in the northern coastal plain and these seeds may possibly be those of that species. The present identification was suggested by Mr. McAtee.

Hicoria glabra (Mill.) Britton (?).

Mercer, Journ. Acad. Nat. Sci. Phila. (ii) **11**: 277, 281. *f. 4, 5, 12, 16.* 1899. (*Carya porcina* Nutt.)

Berry, Torreya, **6**: 89. 1906. Journ. Geol. 15: 340. 1907. Torreya, **9**: 97. *f. 1–5.* 1909.

This species has a wide range in the existing flora of eastern North America and it is also frequently met with in the Pleistocene, having been previously recorded from deposits of this age in Pennsylvania, Maryland, Virginia, and North Carolina. The

present specimens, a number of which are here reproduced, come from near Long Branch, N. J. They resemble somewhat *Hicoria microcarpa* but are larger and thicker shelled. They also show some points of resemblance to *Hicoria villosa*, a comparatively recent segregate from *Hicoria glabra*. On the whole they are closest to the latter species especially to those fruits of the latter which are more symmetrical and not ficiform in shape. They are queried since it is possible that they may represent some intermediate or ancestral form.

Quercus cf. *Phellos* Linné.

Berry, Journ. Geol. **15**: 342. 1907. Amer. Nat. **41**: 694. *pl. 1. f. 1.* 1907. Amer. Jour. Sci. (iv), **29**: 394. 1910.

This oak is a common species of the Carolinian and Louisianian zones ranging from southern New York to Florida and Texas. It is a common fossil in the North Carolina Pleistocene and has also been recorded from the Pleistocene of Alabama. The present occurrence is based upon somewhat flattened cupules from near Long Branch, N. J., whose specific identity is not established with entire certainty. In the same deposits the writer has found a number of immature *Quercus* fruits four to five millimeters in diameter which may belong to this same species.

Vitis pseudo-rotundifolia sp. nov.

Seed relatively slender, curved, pointed: Surface slightly wrinkled: Inner face flat; outer face full and curved: Raphe well marked: Length 6.12 mm: Width 3.20 mm.: Thickness 2.25 mm.

This species of *Vitis* is distinct from any existing species known to the writer. It resembles in its general proportions the seeds of *Vitis rotundifolia* Michx., but is much smaller and less rugose. If it represents an ancestral form of this species, as is not improbable, the range in the late Pleistocene was more extended than at the present time since *Vitis rotundifolia* finds its present northern limit in southern Maryland almost 200 miles south of the oc-

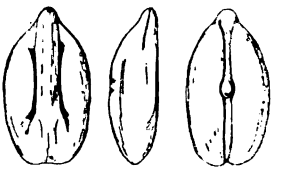

FIG. 2.—Three views of seed (×3) of *Vitis pseudo-rotundifolia* from Long Branch.

currence of **Vitis pseudo-rotundifolia** which is at Long Branch, N. J. Mr. McAtee who kindly compared this seed with the existing species reported that it was different from any of the existing species of *Vitis*.

Vitis cf. *aestivalis* Michx.

The summer grape is widespread in the existing flora of eastern North America ranging from southern New England to Florida along the Atlantic coast. The specimens from the Pleistocene near Long Branch, N. J., are seeds which agree fairly well with the existing species with which they have been compared.

Nyssa biflora Walt.

Hollick, Md. Geol. Surv. Pli. & Pleist, 235. *pl. 69. f. 5.* 1906.
Berry, Torreya. **6**: 90. 1906. Journ. Geol. **15**: 345. 1907.
Amer. Journ. Sci. (iv), **29**: 398. 1910.

This species in the recent flora appears to be confined to the coastal plain ranging from Maryland to eastern Texas. According to Coulter & Evans it occurs in New Jersey, and Sudworth records it from the Piedmont plateau in Montgomery County, Maryland. However, the botanical survey of Maryland which has been completed recently failed to discover this species except in the river swamps of the southern "Eastern Shore" which it would seem marks its present northern limit. Britton & Brown state that perhaps it intergrades with *Nyssa sylvatica* which extends northward to Maine and Canada, but in any case the seeds are distinctive and it is upon the seeds that the present record at Fish House, N. J., is based. Gum seeds have been previously mentioned by the writer as frequent in the Fish House clays but these have never been specifically identified. As a fossil this species has been previously recorded from Maryland, Virginia, North Carolina, and Alabama.

Zizyphus sp.

The remains consist of a flattened drupe with a smooth stone from Long Branch, N. J. They are larger and more massive than those of the existing *Zizyphus obtusifolia* of the southwestern United States and differ from any of the existing species with which they have been compared. There is room for some doubt

regarding the correctness of the identification; the remains are, however, more like those of *Zizyphus* than anything else in the existing flora with which they have been compared either by the writer or by Mr. McAtee of the Biological Survey.

JOHNS HOPKINS UNIVERSITY, BALTIMORE, MD.

TWO INTERESTING NEW ENGLAND PLANTS*

BY H. A. ALLARD

During a brief visit around Oxford, Massachusetts, in September, 1910, I was much impressed with the pretty Spiked-Loosestrife [*Lysimachia terrestris* (L.) B. S. P.]. At this season in certain situations many plants had become strikingly conspicuous from the great numbers of deep red, elongated bulblets which were growing from the axils of the numerous, more or less distinctly whorled leaves. These bulblets, which morphologically are suppressed branchlets, may reach a length of ¾ of an inch, are very pointed and deep red in color. Late in the season these bulblets are very easily detached and thickly strew the ground beneath the plants.

In June and July the Spiked-Loosestrife produces an abundance of small, brown-marked, yellow blossoms in a terminal, pyramidal raceme. The plants, however, are far more noticeable in autumn when they have become reddened with their axillary bulblets, which at first sight resemble peculiar little fruits more than anything else. Conditions of environment seem to determine whether the plants will produce these bulblets abundantly or not. Many botanical descriptions of *Lysimachia terrestris* make little or no mention of this well-marked habit of the plant to produce axillary bulblets.

The Narrow-leaved Laurel (*Kalmia angustifolia* L.) is a low, evergreen shrub thriving in pastures throughout New England. During its growth it forms small tufts which, in the course of years, if the conditions of growth have been uniform, may form great circular areas many feet in diameter. This peripheral extension is probably accomplished by a process of budding from underground shoots.

*Illustrated with the aid of the Catherine McManes fund.

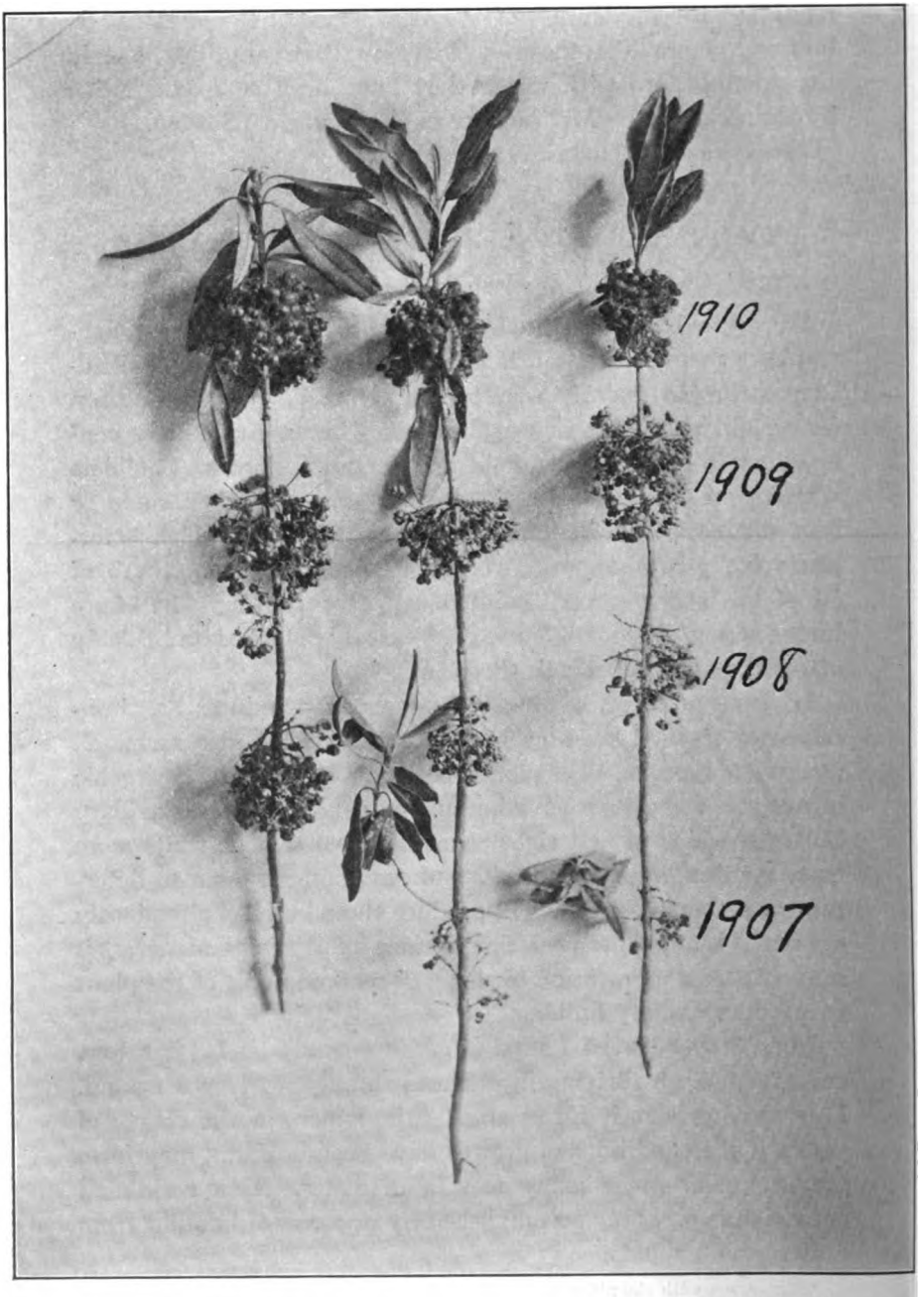

FIG. 1.—Capsule-clusters of *Kalmia angustifolia* of successive years.

It is interesting to observe how persistently this Kalmia retains the seed capsules of each season's growth.

If fruiting branches of this little shrub be carefully examined, it will be noted that several clusters of small, closely crowded capsules appear along the stalk, as shown in the accompanying photograph. Each cluster is the growth of a single season, and as the capsules are strongly persistent, clusters several years old may be present. The accompanying illustration shows two stalks with a few capsules still adhering from the growth of the season of 1907, together with clusters of each succeeding year including the present season of 1910. The uppermost cluster of capsules represents the present season's growth, and is of a rich, reddish-brown color, which becomes a dull, faded grey in older clusters longer exposed to weathering influences.

The beautiful, showy rose-red flowers of early summer are closely arranged in whorls of little corymbs in the axils of the persistent, last year's leaves. Later in the season following the appearance of the clustered capsules these subtending leaves are shed and the leafy shoot of the present season surmounts the topmost capsule cluster, as shown in the photograph. These new leaves persist through the winter, and from their axils will appear the flowers and seed-capsules of the next season.

Kalmia angustifolia flourishes in open, damp situations throughout New England. In certain open hilly pastures it becomes especially luxuriant. The rare beauty of its clustered, deep rosé-red flowers in early summer together with the green, persistent leaves, the neat, compact, massing habit of growth, and its hardy adaptability should highly recommend this Kalmia to cultivation.

DEPARTMENT OF AGRICULTURE

REVIEWS

The Origin of the Coco Palm*

Having described a new species of *Glaziova*, founded upon a specimen growing in the Botanical Garden at Buitenzorg, but

**Glaziova Treubiana* nouvelle espèce de Cocoïnée, avec observations sur le genre Cocos. Par O. Becarri. Annales du Jardin Botanique de Buitenzorg, 2e Serie, Suppl. III. Pp. 791–806, Plate and text figures. Leide, 1910.

whose native country is unknown, and having recorded some observations on the flowers of *Cocos nucifera*, Dr. Beccari devotes the last half of his paper to a discussion of the disputed question of the original home of the latter palm.

On this point the generally accepted opinion had attributed an Asiatic origin to this palm, a view accepted by De Candolle in his classic "*Origine des plantes cultivées.*" But in 1901, Mr. O. F. Cook, in a paper published in the seventh volume of the Contributions of the United States National Herbarium, put forth a well supported argument in favor of "the alkaline regions of the Andes of Colombia,—in valleys remote from the sea," as the cradle of the cocoanut. From both these views Dr. Beccari dissents.

He calls attention to the fact that, in determining the place of origin of a plant or an animal, we must consider not alone the present configuration of the earth's surface, but we must go back at least to the tertiary period, when the ancestors of the organic forms of today were assuming their development (*s'etre effectuée la plasmation*). It is evident that during that period great geographical changes were effected in the Pacific basin in connection with the elevation of the Andes.

The weightiest argument in favor of the American origin of the Coco Palm is drawn from the fact that, with the exception of the African oil palm, *Elaeis guineensis*, all the other members of the tribe are indisputably American. But none of them are, Dr. Beccari claims, truly related to *Cocos nucifera*, which is strictly monotypic, as it is also regarded by Mr. Cook. Moreover, all these relatives, more or less remote, inhabit regions on the eastern side of the Cordilleras, which immense barrier separates them from the present actual center of distribution of the Coco Palm.

The author names several other palms whose presence in America is best accounted for on the hypothesis of the existence, in a former geological age, of a more extensive land area in the Pacific, than now remains.

While the Coco Palm may, under favorable circumstances, live at places distant from the sea, essentially it is a plant of

maritime shores. That it does not occur on some shores where it might naturally be expected is attributed to enemies, among whom, it may be, even primitive man is to be counted. It cannot succeed in forests because it is unable to compete with other trees, and it is there without means of dissemination, for its nuts fall directly at the foot of the tree without any chance of being carried to a distance. On the seashore, favored by its tolerance of salt water, it encounters little competition, and the ocean currents bear its nuts afar.

A further argument is drawn from the singular association existing between the Coco Palm and the Robber Crab. This great crustacean, *Birgus latro*, a foot and a half in length, and terrestrial in habit, can exist only where the cocoanut flourishes, and is found only in the Asiatic and Pacific islands. Like its relative, the Hermit Crab, its soft body is unprovided with a protective covering, and to supply this want the *Birgus* encases its abdomen in the empty shell of a cocoanut, to the cavity of which its dimensions exactly correspond. Even that it climbs to the tops of the palms for the purpose of detaching the nuts, long regarded as a fable, has been recently ascertained to be a fact. Its buccinal claw has developed into a ponderous hammer, wherewith it staves in the germinal end of the cocoanut and extracts, bit by bit, the nourishing meat. To this rich food it is due that its abdomen is a reservoir of oil.

These modifications, so extraordinary both in habits and in organs, and found in the *Birgus* alone, of all the crab family, could have been acquired by association with no other plant than the Coco Palm, and to account for their acquisition demands an immense period of time. And since Polynesia is the native home of *Birgus latro*, it is logical to conclude that it is likewise that of *Cocos nucifera*.

The author, therefore, believes that the Coco Palm acquired its specific form in Polynesia, and that its distribution therein was effected by the ocean currents, whose efficiency for that purpose is so vigorously combated by Mr. Cook. In Asia and in Malasia it has only gained a foothold under the protection of man.

S. B. PARISH

PROCEEDINGS [OF] THE CLUB

OCTOBER 11, 1910

The first fall meeting of the Club was held at the Museum of Natural History. Vice-president Barnhart occupied the chair. Eight persons were present. Mrs. M. E. Soth, of Manitou, Colorado, was elected to membership.

The scientific program consisted of an illustrated lecture on "European Influences in the History of American Botany" by Dr. John Hendley Barnhart.

JEAN BROADHURST,
Secretary pro tem.

OCTOBER 26, 1910

The meeting of October 26 was held in the museum building of the New York Botanical Garden at 3:30 P.M. Eleven persons were present. Vice-president Barnhart occcupied the chair.

The minutes of the meeting of October 11 were read and approved. It was then voted to accept the resignation of Frederick S. Beattie, of Tilton, N. H.

The scientific program consisted of informal reports on the summer's work. Mr. Norman Taylor, chairman of the field committee, gave an account of the Decoration Day excursion by members of the Club to Saugerties, Ulster Co., N. Y., of a personal collecting expedition to Bean Run, Luzerne Co., Pa., and of the "Symposium" in cooperation with the Philadelphia Botanical Club, which was held this year at Farmingdale, Monmouth County, New Jersey, July 2 to July 9. Farmingdale is north of the pine-barren region and its soils are largely Cretaceous marls and clays, but it was of interest to find in this region, especially on the low hills, northward extensions of the range of certain characteristic pine-barren plants.

Mrs. N. L. Britton gave a report of the summer meeting of the Vermont Botanical Club, which was held at Woodstock, Vermont, during the first week of July.

Mr. F. J. Seaver remarked briefly concerning his visit to the mountains of Colorado, where he made collections of fungi during the month of September.

Dr. John Hendley Barnhart reported upon his visit to Europe during May, June, and July, including an account of the International Botanical Congress at Brussels, to which he was one of the Club's delegates. He also related some of his experiences and results in purchasing books for the library of the New York Botanical Garden and in a few hours of plant-collecting in the vicinity of Oberammergau.

Dr. P. A. Rydberg stated that for the first season in twenty-six years he had not collected a single plant, and in this connection he briefly reviewed some of his earlier field-work.

Adjournment followed.

MARSHALL A. HOWE,
Secretary pro tem.

OF INTEREST TO TEACHERS

KIPLING ON THE OLD HERBALISTS

In Kipling's Rewards and Fairies* is a musical poem, "Our Fathers of Old", which shows that Kipling must be familiar with some of the old herbals. The first stanza follows:

"Excellent herbs had our fathers of old—
Excellent herbs to ease their pain—
Alexanders and Marigold,
Eyebright, Orris, and Elecampane.
Basil, Rocket, Valerian, Rue,
(Almost singing themselves they run)
Vervain, Dittany, Call-me-to-you—
Cowslip, Meliot, Rose of the Sun.
Anything green that grew out of the mould
Was an excellent herb to our fathers of old."

As in Adam in Eden, "simply and gravely the facts are told"; yet after all,

"Wonderful little, when all is said,
Wonderful little our fathers knew.
Half their remedies cured you dead—
Most of their teaching was quite untrue."

*Doubleday, Page and Co., Garden City, New York, 1910.

In the October issue (page 236) Professor Macoun's address was given as Ontario instead of Ottawa.

Teachers in the southwestern states will be interested in The Trees and Shrubs of San Antonio and Vicinity. This little booklet gives the woody plants of the region, with a brief, non-technical description, and a short paragraph on uses and habitats. There is no key, but, as the author says, any plant may be traced to the family by any general flora; and as the plants are grouped by families, its further identification is a simple matter. The common names are emphasized by being placed first.

Professor Bessey (*Science*, November 11) has made a new estimate of the number of species of plants "with which botanists have enough acquaintance to permit of their systematic arrangement and enumeration. The result is that roughly speaking we may say that there are now known about 210,000 species, distributed as follows: Myxophyceae (Blue Greens) 2,020, Protophyceae (Simple Algae) 1,100, Zygophyceae (Conjugate Algae) 7,000, Siphonophyceae (Tube Algae) 1,100, Phaeophyceae (Brown Algae) 1,030, Carpophyceae (Higher Algae) 3,210, Carpomyceteae (Higher Fungi) 63,700, Bryophyta (Mossworts) 16,600, Pteridophyta (Ferns) 2,500, Calamophyta (Calamites) 20, Lepidophyta (Lycopods) 900, Cycadophyta (Cycads) 140, Strobilophyta (Conifers) 450, and Anthophyta (Flowering Plants) 110,000.

An article on conserving the purity of the soil (*Science*, Oct. 21) by H. L. Bolley emphasizes the necessity of keeping soils, especially for cereals, in a sanitary condition. The author concludes with the following paragraph:

"If, on the other hand, you declare for careful seed selection in all cases, careful seed disinfection at all times, the formation of a well-aerated but compacted seed bed, and for as extensive a rotation of crops of as wide-spread character as possible, you of the new dry land regions of the west have the greatest possible

opportunity to prove to the world that it is not necessary to lose a crop of such importance as linseed from among your rotations, nor is it necessary that your wheat yields should fall from the now promising ones of thirty to sixty bushels per acre to the general average of twelve to fifteen."

The May *Bulletin of the Torrey Botanical Club* contains an article by Harry B. Brown on the genus *Crataegus*, with some theories concerning the origin of its species. Prior to 1896 about one hundred North American species of *Crataegus* had been described; since then eight hundred and sixty-six species and eighteen varieties have been described. Three explanations might be given: that the early systematists were not careful workers; that the number of species has multiplied greatly recently; that the older species are hybridizing. Opinions from leading systematists are given. Mr. Brown thinks that the present different concept of species is responsible for part of the increase; and the rest may be accounted for by (1) the decrease in forested land and the consequent increase in the number of *Crataegus* plants now occupying the space and (2) by the fact that many of the present forms seem to be hybrids.

In the *Plant World* for July an unusual formation of adventitious roots is described by F. A. Wolf. "During a storm the trunk of this large hackberry tree had been split and the fallen portion was subsequently removed. At a point about eight feet above the ground and a little above the broken edge of the tree a cluster of fibrous roots were formed. Some of these grew to be over a foot in length and larger in diameter than a lead pencil." Mr. Wolf says that there "is no doubt that no such phenomena would be expected to occur in a normal healthy tree, yet this is not an adequate explanation for their formation. Certain it is that the vitality of the tree had been seriously impaired and it responded to this abnormal condition by a peculiar development of roots. It would seem, too, that such a growth might better be expected in a more humid region and not under semi-arid conditions such as prevail about Austin. This is one of the singu-

lar, natural phenomena the reason for which can only be a matter of conjecture."

The American Phytopathological Society calls attention to "two dangerous European plant diseases: the potato wart, caused by *Chrysophlyotis endobiotica* Schilb., and the blister rust of white pine, caused by *Peridermium strobi* Klebahn. The former has been discovered in Newfoundland. The latter has been widely distributed in nine of the United States and in the Province of Ontario, but is now believed to have been eradicated." The Society regrets that through the absence of any national regulation in either the United States or Canada both governments are powerless to prevent the continued introduction of these and other dangerous diseases, or their transference from one country to the other; and promises to support all legislation in both the United States and Canada looking toward the inspection, quarantine, or prohibition from entry of all plant material liable to introduce these or other dangerous diseases or pests. The Society feels the need of immediate action, as "every law of biology and all experiences with plant diseases and pests indicate that, in a new climate, with new varietal and specific hosts and with an entire continent in which to spread, both diseases will reach a degree of virulence unknown in Europe."

The *Outlook* for November 19 gives the Forest Service "estimate of the loss in the National Forests in Montana and Idaho due to the fires and hurricane of August 26 last. The estimate puts the total amount of destroyed timber at over six billion board feet, or between one and two per cent. of the total stand of National Forest timber, the area burned over exceeding one and a quarter million acres. This announcement has caused caustic comment by the opponents of the Federal administration of forests. Some attempt has been made to connect the matter with the 'New Nationalism', as showing that there is no necessity for such an issue of centralization. Apparently, in the minds of these critics, the fires would not have occurred if the forests had been State and not National Forests!" Drought, the quan-

tity of inflammable material, the inaccessible character of the country, and unusually high winds all added to the difficulties faced by the not incompetent but *inadequate* forest service. A much larger sum should immediately be appropriated by Congress for this work.

NEWS ITEMS

L. H. Pennington, instructor at Northwestern University, has recently been made assistant professor of botany at Syracuse University.

The annual meeting of the American Society of Naturalists will be held (Dec. 28–30) at Cornell University. Dr. D. T. MacDougal will deliver the presidential address.

A drinking fountain, the memorial to Dr. James Fletcher mentioned some months ago in TORREYA, has been erected at the Central Experiment Farm, Canada.

Professor W. A. Henry, professor emeritus of agriculture of the University of Wisconsin, is planning to spend a year investigating agriculture in Europe.

Dr. William A. Cannon of the Desert Laboratory of the Carnegie Institution is spending a year abroad, visiting European botanical gardens and African deserts.

Dr. W. A. Murrill, of the New York Botanical Garden, has just returned from a European trip taken primarily to examine type specimens of fungi.

Dr. Ormond S. Butler (Ph.D. Cornell, 1910) has been appointed instructor in horticulture at the College of Agriculture of the University of Wisconsin and the Wisconsin Agricultural Experiment Station.

Letchworth Park, the thousand acre park given conditionally to the state of New York in 1907, became the possession of the State upon the death of the donor, William Pryor Letchworth, on December 1.

The sixty-second meeting of the American Association for the Advancement of Science, and the ninth of the "Convocation

week" meetings, will be held in Minneapolis, December 27 to 31, 1910, at the invitation of the University of Minnesota. The Botanical Society of America and various affiliated societies meet as usual at the same time. Owing to Professor Penhallow's death, Section G will convene under Vice-president R. A. Harper. Further information may be obtained from the permanent secretary, Dr. L. O. Howard, or from the secretary of Section G, H. C. Cowles, University of Chicago.

In the Brooklyn Institute prospectus for 1910–1911 two courses of lectures are announced in botany. They are given by Dr. C. Stuart Gager, the director of the new Brooklyn Botanic Garden. The first is a series of ten illustrated lectures on plant physiology given on Saturday mornings beginning October 15, but omitting November 26, December 26, and 31. The course will deal with modern views and interpretations of various fundamental life processes of plants. The second course is on the teaching of botany, and will be given on Saturday mornings beginning on March 4, but omitting April 5. This is intended primarily for teachers (including teachers of nature work) and those intending to teach. Readings will be assigned in the literature of the pedagogy of botany, and a comprehensive bibliography may be secured. All the lectures begin at ten o'clock, are open to teachers in the public and private schools, and will be held in the Brooklyn Academy of Music.

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New names and the names of new generaand species are printed in **boldface type.**

lished through the action of the trustees of the Missouri Botanical Garden ; they are to be known as the Rufus J. Lockland research fellowships, in honor of the late president of the board.

Edward W. Berry, of the Johns Hopkins University, will spend September and October in collecting fossil plants from the Cretaceous and Tertiary of the Gulf region from Florida to Louisiana, and northward through Arkansas, Tennessee and Kentucky. It is hoped that these collections will have an important bearing upon the correlation of the containing deposits and will serve as a basis for subsequent monographic studies.

THE TORREY BOTANICAL CLUB

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All business correspondence relating to the above publications should be addressed to William Mansfield, Treasurer, College of Pharmacy, 115 W. 68th St., New York City.

OTHER PUBLICATIONS

OF THE

TORREY BOTANICAL CLUB

(1) BULLETIN

A monthly journal devoted to general botany, established 1870. Vol. 36 published in 1909, contained 720 pages of text and 34 full-page plates. Price $3.00 per annum. For Europe; 14 shillings. Dulau & Co., 37 Soho Square, London, are agents for England.

Of former volumes, only 24–36 can be supplied entire; certain numbers of other volumes are available, but the entire stock of some numbers has been reserved for the completion of sets. Vols. 24–27 are furnished at the published price of two dollars each; Vols. 28–36 three dollars each.

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(2) MEMOIRS

The MEMOIRS, established 1889, are published at irregular intervals. Volumes 1–11 and 13 are now completed; Nos. 1 and 2 of Vol. 12 and No. 1 of Vol. 14 have been issued. The subscription price is fixed at $3.00 per volume in advance. The numbers can also be purchased singly. A list of titles of the individual papers and of prices will be furnished on application.

(3) **The Preliminary Catalogue of Anthophyta and Pteridophyta** reported as growing within one hundred miles of New York, 1888. Price, $1.00.

Correspondence relating to the above publications should be addressed to

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BY

JEAN BROADHURST

JOHN TORREY, 1796–1873

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